

## ITD 757 DESIGN STANDARDS – Simple

### 1. PROJECT IDENTIFICATION

Project No.	Project Tracking, Project Data
Key No.	Project Tracking, Project Data
Date	Enter Date of Submittal.
Project Title	Project Tracking, Project Data
County	Project Tracking, Project Data
Terrain Type	Refer to page 231 of the AASHTO Green Book for guideline definitions of the three terrain types. The <i>Highway Capacity Manual</i> also contains general terrain definitions. Sound engineering judgment involving consideration of all factors should be applied.
Highway No.	Project Tracking, Project Data.
MP	Enter Beginning Milepost from Project Tracking, Project Data
MP	Enter Ending Milepost from Project Tracking, Project Data
Functional Class	Highway Needs Report, <a href="#">Admin Policy A-09-02</a> , or Contact Division of Planning.

### 2. PROJECT TYPE

Project Standards	<a href="#">Design Manual Subsection 510.01</a> Project Determination and Scope.
Oversight	Attached <a href="#">Oversight Agreement</a> or <a href="#">Design Manual 510.01</a> , Project Determination and Scope. (Simple Projects must be exempt)

### 3. GENERAL DESCRIPTION

A short description of the work to be done should be added in this area with a note to see attachment. The attached project description or “Draft Design Study Report” must include the purpose and needs for the project as well as a narrative description of the project including any information that clarifies the design intentions and improves the understanding of the project.

### 4. STANDARDS FOR PAVEMENT WIDTH

This includes the total pavement width including lanes and shoulders.

**Note:** Show width for AASHTO or 3R or State **and** ITD (if corridor plan exists).

Found in the AASHTO *Green Book* and the State Design Standards. ITD uses 12 feet travel lanes so the appropriate shoulder width must be applied.

AASHTO Standard Width	(N/A on non-NHS & NHS 3R projects)
Freeways	2004 Green Book      Page 504
NHS (Prin. Arterial)	2004 Green Book      Page 448 Exhibit 7-3
3R Standard Width	(N/A on non-3R Projects)
	3R Improvements, <a href="#">Design Manual, Appendix A</a> .
	Note: These widths are based on Average Running Speed, Design Year ADT and percent trucks.

State Standard Width	(N/A on NHS Projects) State Design Standards, <a href="#">Design Manual, Appendix A</a> , (Sec A.15, A.15.04 & A.15.05).
ITD Standard Width	(N/A on Projects w/o corridor plans) Recommended Roadway Widths per corridor plans referenced in <a href="#">Administrative Policy A-14-02</a> .

Deviation from standard widths will require a Design Exception and will be justified in the concept report.

## 5. ROADWAY WIDTH

For proposed widths on AASHTO Standard Design projects this is defined as the all weather surface width, which is 6:1 or flatter and may include the slope shoe.

The existing widths can be taken from the last set of construction plans or the Highway Needs Report, but field measurements would be prudent. All varying widths should be shown by limits. The existing and proposed typical must be attached to the report.

## 6. PROPOSED MAXIMUM SUPERELEVATION

An  $e_{\max} = 8\%$  is customarily used for the proposed maximum super elevation for any curve within the project.

(See *AASHTO Green Book* and [Design Manual Subsection 535.01](#) for Maximum super elevations)

## 7. PROPOSED DESIGN VEHICLE

This is the vehicle used in the design of the main alignment and the major intersections. Guidance for the proper vehicle to use for each project is given in the [Design Manual Section 555.00](#).

## 8. DESIGN YEAR

The design year for most projects is the year the project is shown in the ITD Project Development Schedule plus 20 years plus 2 years (for construction). See [Design Manual Subsection 335.02](#), *Traffic Volume*.) For 1-R projects use 8-year minimum.

## 9. & 10. TRAFFIC ADT& DHV

This information should be for the design year. It may be obtained from the Traffic Survey & Analysis Section by completing an [ITD 1151](#) Traffic Data Request form to obtain projected traffic data on an existing highway. Show the worst case or highest counts for present and future ADT and DHV in the blank areas. Attach all counts to the report including the turning movement counts for existing or proposed signal. All the traffic data must be attached to the Concept Report.

## 11. POSTED SPEED

Posted Speed should be the actual posted speed throughout the project.

## 12. DESIGN SPEED

Minimum Design Speeds are found in the AASHTO Green Book and in the State Standards.

Freeways	2004 Green Book	Page 503
NHS (Principal Arterial)	2004 Green Book	Page 444(Rural) & 470(Urban)
Non-NHS	State Design Standards	

ITD uses the general rule of 75 mph for Interstate, 60 mph for ramps, state highways, or at least equal to the posted speed. If more than one speed zone exists on a project, list them with limits. They may be placed on a separate sheet if necessary.

3R Projects should have the Posted Speed listed and both the Average Running Speed and the 85<sup>th</sup> Percentile Speed listed instead of the Design speed. This should be obtained from the District Traffic Section. (See [Design Manual, Appendix A](#)).

## 13. MINIMUM LEVEL OF SERVICE

Although capacity is not a controlling criteria, a guide for the appropriate level of service can be found on *page 85, Exhibit 2-32, 2004 AASHTO Green Book*. This can be calculated by using the procedures and formulas in the *Highway Capacity Manual*. A P.C. program is available from the Engineering Support Unit to calculate this information. Calculate present LOS and design year LOS. Use the projected design year LOS for the project recommendation. Attach the worksheet or the computer printout to the Concept Report.

## 14. ACCESS CONTROL

State Highway System Only. A list of the existing access control for the State highway system is available from Division of Planning. The proposed Access Control for a project should conform to the “Rural Highways Access Control Guide” map contained in [Administrative Policy A-12-01](#). A change or deviation from the existing Access Control policy will require an [ITD 606](#) to be submitted for approval with the Concept Report and justified in the Concept Report narrative.

## 15. MAXIMUM GRADE

Existing	Show Maximum Grade within Project Limits	
Proposed	AASHTO Green Book	
Freeways	2004 Green Book	Page 506 Exhibit 8-1
NHS (Principal Arterial)	2004 Green Book	Page 446 Exhibit 7-2
Non-NHS	2004 Green Book	(Appropriate Functional Classification Section)

## 15. MINIMUM CURVE RADIUS

Existing – Show the minimum existing curve radius within the project limits.

Proposed – Show the minimum proposed curve radius within the project limits.

*AASHTO Green Book* on page 146 address minimum radius with applicable exhibits shows minimum curve radius for sections with normal cross slopes and *Exhibit 3-15* shows minimum radius using super elevation. Design superelevation tables are shown in Exhibits 3-25 to 3-29.

## 17. PROPOSED STRUCTURES

Attach typical section and current bridge inspection reports. This is necessary on all projects with structures over 20 feet in length along the centerline. List all structures located within the project limits. Use a separate sheet or in the Concept Report narrative. 3R project only require bridge typical sections for those structures needing work.

Deck Width (c-c)	Deck width curb to curb. <i>AASHTO Green Book</i> by appropriate highway function classification.
Deck Width (o-o)	Deck width out to out. This includes guard rail, extra deck, curbs, and sidewalks.

Vertical Clearance (Rdwy/Q<sub>50</sub>) This is the minimum vertical difference between:

1. Lowest member of the bridge and the roadway below.
2. Bottom of the bridge to the Q<sub>50</sub> water elevation.
3. Bridge deck and the lowest overhanging member. (through truss bridges)

If the structure crosses multiple features list the minimum vertical clearance for each feature separately in the Concept Report narrative.

Existing Bridge Sufficiency Rating	Bridge Inspection Report or Contact Bridge Inspection for the most current information. Attach the Bridge Sufficiency Rating data to the Concept Report.
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Design Load	All State Highways shall use a minimum of HL-93. Very low volume local roads may use HS-20 if approved by the Bridge Section.
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Rail Type	Shows the type of Bridge Rail to be used on the structure. Approved types can be found by contacting the Bridge Section or in the Bridge Manual.
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## 18. CLEAR ZONE

Designate a cut and a fill clear zone distance, which will typically be applied throughout the project. Distances should be selected from the ranges given in the Roadside Design Guide or the Design Manual using sound engineering judgment.

AASHTO	Roadside Design Guide
3R IS	D.M. <a href="#">A.05.10</a> & <a href="#">565.01</a> <a href="#">Figure 5-7</a>
3R NHS	D.M. <a href="#">A.10.11</a> <a href="#">Figure A-2</a>
STATE	D.M. <a href="#">A.15.09</a> & <a href="#">A.15.10</a>

**Note:** A P.C. computer program named *Roadside* is available from the Engineering Support Unit to calculate much of the information described in the *Roadside Design Guide*.

## 19. PROPOSED WORK

Check the appropriate general areas of construction, which describe the project. Use the space listed as “other” to list addition major items not shown.

## 20. TRAFFIC SIGNALS

- a. Location and type of the existing traffic controller, if any.
- b. Proposed location and list the warrants for each particular signal. The work sheet ITD 1415 for the warrants must be attached.

## 21. RAILROAD CROSSING PROTECTION

Location and type of the existing protection devices, if any.

Show proposed location and type of protection proposed and attach Railroad Crossing Report. Headquarters Traffic Section may assist with this information.

## 22. ACCIDENT HISTORY

Accident Base Rate (ACC/MV) can be obtained from the [Safety Evaluation Instruction Manual](#), which can be obtained from the Traffic Section.

Existing Accident Rate within Project Limits (ACC/MV) can be calculated using Accident Summary Instructions in the [Safety Evaluation Instruction Manual](#).

Spot locations within Project Limits that exceed the Base Rate – List all locations that exceed the base rate.

## 23. PROPOSED IMPROVEMENTS TO REDUCE ACCIDENTS

This must also be addressed in addition to attaching the accident summary.

A safety evaluation form, [ITD 2658](#), must be completed for each safety project. Refer to the [Safety Evaluation Instruction Manual](#).

<b>MP</b>	List the approximate location of each high accident location.
<b>Type of Improvements</b>	Briefly describe the type of improvements proposed to correct the high accident cause.
<b>Estimated Accident Reduction</b>	Attach the work sheet ( <a href="#">ITD 2658</a> ) for each proposed improvement location.

Note: The [ITD 2658](#) must be completed for projects on the STP-Safety program and for projects on the High Accident Location list.

For the remainder of the projects, N/A may be entered.

## 24. ENVIRONMENTAL

Conceptual Environmental Evaluation ( <a href="#">ITD 651</a> ) Complete	Check yes or no.
If no, Explain	Explain the status of the environmental document.
Environmental Concerns	Explain the items of concern that may be encountered.